

WHAT IS CLAIMED IS:

1. An image recording device, comprising:

a recording head having a nozzle to discharge an
ultraviolet-ray curable ink which is cured as irradiated with
5 ultraviolet rays; and

an ultraviolet-ray irradiation device having an
ultraviolet light source to generate ultraviolet rays to cure
the ultraviolet-ray curable ink, the ultraviolet light source
comprising a light emitting diode which generates the
10 ultraviolet rays having an emission wavelength peak in a
range between 305 and 375 nm, and a maximum illuminance in a
range between 40 and 1000 mW/cm² on a recording medium
surface,

wherein an image is formed by placing the
15 ultraviolet-ray curable ink discharged from the nozzle on a
recording medium and by irradiating the ink on the recording
medium with ultraviolet rays by the ultraviolet-ray
irradiation device to cure the ink.

2. The image recording device of claim 1,

20 wherein the recording head is a serial head system,
and the ultraviolet-ray irradiation device is disposed on at
least one of front and rear sides of the recording head in a
main scanning direction.

3. The image recording device of claim 2,

25 wherein the plurality of recording heads are
arranged, and the ultraviolet-ray irradiation device is
disposed between the respective recording heads.

4. The image recording device of claim 1,
wherein the recording head is a line head system,
and the ultraviolet-ray irradiation device is disposed on a
rear side of the recording head in a conveying direction of
5 the recording medium.

5. The image recording device of claim 1,
wherein total power consumption of the ultraviolet-
ray irradiation device is less than 1 kw/h.

6. The image recording device of claim 1,
10 wherein the ultraviolet-ray curable ink has a
viscosity of 7 to 50 mPa·s at 25°C.

7. The image recording device of claim 1,
wherein the ultraviolet-ray curable ink contains a
compound having at least one kind of oxetane ring as
15 photopolymerizable monomer.

8. The image recording device of claim 1,
wherein the ultraviolet-ray curable ink contains 30
to 95 wt% of a compound having at least one kind of oxetane
ring, 5 to 70 wt% of a compound having least one kind of
20 oxirane group, and 0 to 40 wt% of at least one kind of vinyl
ether compound as photopolymerizable monomers.

9. The image recording device of claim 1,
wherein the recording medium is made of a material
which does not absorb the ultraviolet-ray curable ink.

25 10. The image recording device of claim 1,
wherein the ultraviolet-ray curable ink contains a
compound having at least one of acrylic monomer or

methacrylic monomer as a photopolymerizable compound.

11. The image recording device of claim 1,
wherein the ultraviolet-ray curable ink contains 1
to 40 wt% of water-soluble monomer.

5 12. A method for recording an image on a recording
medium, comprising:

discharging an ultraviolet-ray curable ink, which is
cured as irradiated with ultraviolet rays, from a recording
head having a nozzle disposed therein to place the ink on the
10 recording medium;

placing the ink discharged from the nozzle of the
recording head on the recording medium; and

irradiating ultraviolet rays from an ultraviolet
light source to the ink on the recording medium to form the
15 image,

wherein an emission wavelength peak of the
ultraviolet light source is in a range between 305 and 375 nm,
and a maximum illuminance of the ultraviolet light source is
in a range between 40 and 1000 mW/cm² on a surface of the
20 recording medium to cure the ink.

13. The method of claim 12,

wherein the recording medium is irradiated with the
ultraviolet rays by the ultraviolet-ray irradiation device
within 0.001 to 1.0 second after the placing of the
25 ultraviolet-ray curable ink on the recording medium.

14. The method of claim 12,

wherein the amount of an ink droplet discharged from

the nozzle is 1 to 15 pl.

15. The method of claim 12,

wherein a total ink film thickness is 2 to 20 μm
after the ultraviolet-ray curable ink placed on the recording
5 medium is irradiated with the ultraviolet rays and is thereby
cured.

16. The method of claim 12,

wherein the light source comprises a light emitting
diode.

10 17. An image recording device, comprising: /

recording means having a nozzle to discharge an
ultraviolet-ray curable ink which is cured as irradiated with
ultraviolet rays; and

ultraviolet-ray irradiating means having an
15 ultraviolet light source to generate ultraviolet rays to cure
the ultraviolet-ray curable ink, the ultraviolet light source
comprising a light emitting diode which generates the
ultraviolet rays having an emission wavelength peak in a
range between 305 and 375 nm, and a maximum illuminance in a
20 range between 40 and 1000 mW/cm² on a recording medium
surface,

wherein an image is formed by placing the
ultraviolet-ray curable ink discharged from the nozzle on a
recording medium and by irradiating the ink on the recording
25 medium with ultraviolet rays by the ultraviolet-ray
irradiating means to cure the ink.